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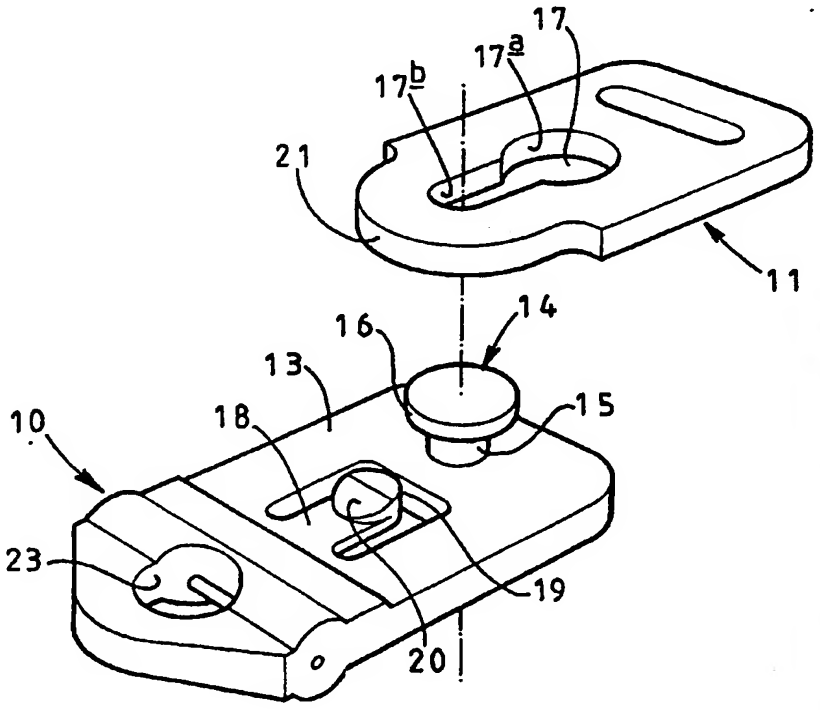
(54) Title: AN INVALID HOIST SLING ATTACHMENT DEVICE

(57) Abstract

An invalid hoist sling attachment device comprises a holder (10) attached to or adapted to be attached to a sling hanger of an invalid hoist (or a sling) and a clip (11) attached to or adapted to be attached to the sling (or the sling hanger). The holder comprises a plate-like part (13) and a headed stud (14) projecting from one face of the plate-like part. The clip has a slot (17) comprising a first portion (17a) through which the head of the stud will pass and a second portion (17b) through which the head of the stud will not pass. The holder also has a resilient locking element (18) having at least a portion (19) which protrudes from said one face of the plate-like part to prevent movement of the clip relative to the holder, when the clip is engaged with the headed stud of the holder, into a position in which the head of the stud and the first portion of the slot are aligned without first depressing the resilient locking element.



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AN INVALID HOIST SLING ATTACHMENT DEVICE

This invention relates to an invalid hoist sling attachment device for attaching a sling to a sling hanger of an invalid hoist.

It is known to provide an attachment device comprising a headed stud, which is secured to the lifting arm of a hoist, and a plate-like clip, which is connected to a sling. The clip is provided with a slot comprising a first portion through which the head of the stud will pass, a second portion through which the head of the stud will not pass and a passage joining the first portion to the second portion. In order to place the clip on the stud, the first portion of the slot is aligned with the head of that stud. The clip is then placed over the stud and moved relative to the stud until the shaft of the stud is disposed in the second portion of the slot. The second portion of the slot receives the shaft of the stud with a clearance so that the clip can pivot about the shaft. The passage receives the shaft of the stud as a friction fit to discourage unintentional movement of the clip from an operative position in which the shaft of the stud is disposed in the second slot portion to a disengageable position in which the shaft of the stud is disposed in the first slot portion.

However, it has been found that these known clips do occasionally become unintentionally disengaged from the studs and the present invention seeks to provide an improved attachment device which will make unintentional disengagement less likely.

According to the present invention there is provided an invalid hoist sling attachment device comprising a holder attached to or adapted to be attached to one of a sling hanger of an invalid hoist and a sling and a clip attached to or adapted to be attached to the other of the sling hanger and the sling, the holder comprising a plate-like part and a headed stud projecting from one face of the plate-like part and the clip having a slot comprising a first portion through which the head of the stud will pass and a second portion through which the head of the stud will not pass, the holder also having a resilient locking element having at least a portion which protrudes from said one face of the plate-like part to prevent movement of the clip relative to the holder, when the clip is engaged with the headed stud of the holder, into a position in which the head of the stud and the first portion of the slot are aligned without first depressing the resilient locking element.

Preferably, the resilient locking element, typically a resilient finger, is defined by a slot, typically of generally U-shape, in the plate-like part of the holder.

Preferably, the holder and clip are made of plastics material.

Preferably, the protruding portion of the resilient locking element is at a free end of the locking element. In this case, advantageously, the protruding portion of the resilient locking element has a ramped surface on its side furthest from the free end of the locking element to assist in engagement of the clip with the holder.

Preferably, the end of the clip closest to the second portion of the slot in the

clip is part circular to allow the clip to pivot relative to the holder about the headed stud without interference from the resilient locking element. In this case, the clip may have an overhanging lip on its face remote from the holder to make it difficult for a person to depress the locking element except when the clip and the holder are in one or more predetermined angular positions relative to one another.

The invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of one embodiment of an attachment device according to the present invention,

Figure 2 is a sectional view taken along the line II - II of Figure 1, and

Figure 3 is a perspective view showing the two parts of the attachment device separated.

Referring to the drawings, the attachment device shown therein comprises a holder 10 which is adapted to be attached to a sling hanger (not shown) of an invalid hoist, e.g. a hoist according to GB 2184706 B, and a clip 11 connected by a flexible strap 12 to a sling (not shown).

The holder 10 comprises a plate-like part 13 and a headed stud 14 projecting from one face of the plate-like part 13. The stud has a stem 15 of circular cross section and a round head 16.

The clip 11 is plate-like and has a key-hole slot 17 comprising a first part circular portion 17a and a second elongate portion 17b. The diameter of the slot portion 17a is slightly larger than the diameter of the head 16 of the stud 14. The width of the slot portion 17b is less than the diameter of the head 16 of the stud 14 and slightly larger than the diameter of the stem 15 so that when the stem 15 is disposed in the slot portion 17b, the clip 11 can pivot freely about the stud 14 but cannot be disengaged therefrom.

The holder 10 and the clip 11 are made of plastics material, typically glass fibre reinforced nylon.

The holder 10 also has a resilient locking element in the form of a resilient finger 18 formed generally in the plane of the plate-like part 13 and defined by a generally U-shaped slot formed in the plate-like part 13. The finger 18 has at its free end a portion 19 which protrudes from said one face of the plate-like part 13 to prevent movement of the clip 11 relative to the holder 10, when the clip is engaged with the headed stud 14 of the holder, into a position where the head 16 of the stud 14 and the first portion 17a of the slot 17 are aligned without first depressing the finger 18.

The finger 18 also has a ramped surface 20 on that side of the protruding portion 19 furthest from the free end of the finger 18 to assist in engagement of the clip 11 with the holder 10.

The end of the clip 11 closest to the second portion 17b of the slot 17 is part circular (as shown at 21) to allow the clip 11 to pivot relative to the holder 10 about the headed stud 14 without interference from the resilient finger 18.

The clip 11 may also have an overhanging lip (not shown) on its face remote from the holder 10 to shield the finger 18 and make it difficult for a person to depress the finger 18 except when the clip 11 and the holder 10 are in one or more predetermined angular positions relative to one another.

The holder also has a circular hole 23 which is dimensioned so that it will fit over a conventional headed stud of a sling hanger as a very tight force fit. The holder can therefore be retro-fitted to an existing hoist but it is vital that the dimensions of the hole 23 should be such that it is extremely difficult to remove the holder 10 from the sling hanger once it has been fitted thereto. Alternatively, and as shown, a cross pin can be inserted in holes in the holder 10 to extend across the hole 23 after the holder has been fitted to a sling hanger to ensure that the holder is firmly secured to the sling hanger.

In order to place the clip 11 on the stud 14, the part circular slot portion 17a is aligned with the head 16 of the stud 14. The clip is then pressed firmly towards the plate-like part 13 of the holder 10 to depress the resilient finger 18 and a force is applied to the clip 11 to cause the clip to slide relative to the stud 14 until the stem 15 of the stud is disposed in the slot portion 17b. The resilient finger 18 will then return to its original position and this will prevent removal of the clip 11 from

the stud 14 without first depressing the finger 18. The clip 11 cannot, therefore, become unintentionally disengaged from the stud 14 and this will give both attendant and user a sense of greater security.

The overhanging lip, if provided, may ensure that the clip 11 can only be removed from the holder when the longitudinal extent of the slot 17 is generally aligned with the longitudinal extent of the finger 18.

The embodiment described above is given by way of example only and various modifications will be apparent to persons skilled in the art without departing from the scope of the invention. For example, the holder could be attached to the sling hanger of the hoist in a more permanent manner. Also, the clip and holder could be interchanged with the clip attached to the sling hanger and the holder attached to the sling.

CLAIMS

1. An invalid hoist sling attachment device comprising a holder attached to or adapted to be attached to one of a sling hanger of an invalid hoist and a sling and a clip attached to or adapted to be attached to the other of the sling hanger and the sling,, the holder comprising a plate-like part and a headed stud projecting from one face of the plate-like part and the clip having a slot comprising a first portion through which the head of the stud will pass and a second portion through which the head of the stud will not pass, the holder also having a resilient locking element having at least a portion which protrudes from said one face of the plate-like part to prevent movement of the clip relative to the holder, when the clip is engaged with the headed stud of the holder, into a position in which the head of the stud and the first portion of the slot are aligned without first depressing the resilient locking element.

2. An invalid hoist sling attachment device as claimed in claim 1, wherein the resilient locking element is defined by a slot in the plate-like part of the holder.

3. An invalid hoist sling attachment device as claimed in claim 2, wherein the resilient locking element is a resilient finger and the slot is of generally U-shape.

4. An invalid hoist sling attachment device as claimed in any one of the preceding claims, wherein the holder and clip are made of plastics material.

5. An invalid hoist sling attachment device as claimed in any one of the

preceding claims, wherein the protruding portion of the resilient locking element is at a free end of the locking element.

6. An invalid hoist sling attachment device as claimed in claim 5, wherein the protruding portion of the resilient locking element has a ramped surface on its side furthest from the free end of the locking element to assist in engagement of the clip with the holder.

7. An invalid hoist sling attachment device as claimed in any one of the preceding claims, wherein the end of the clip closest to the second portion of the slot in the clip is part circular to allow the clip to pivot relative to the holder about the headed stud without interference from the resilient locking element.

8. An invalid hoist sling attachment device as claimed in claim 7, wherein the clip has an overhanging lip on its face remote from the holder to make it difficult for a person to depress the locking element except when the clip and the holder are in one or more predetermined angular positions relative to one another.

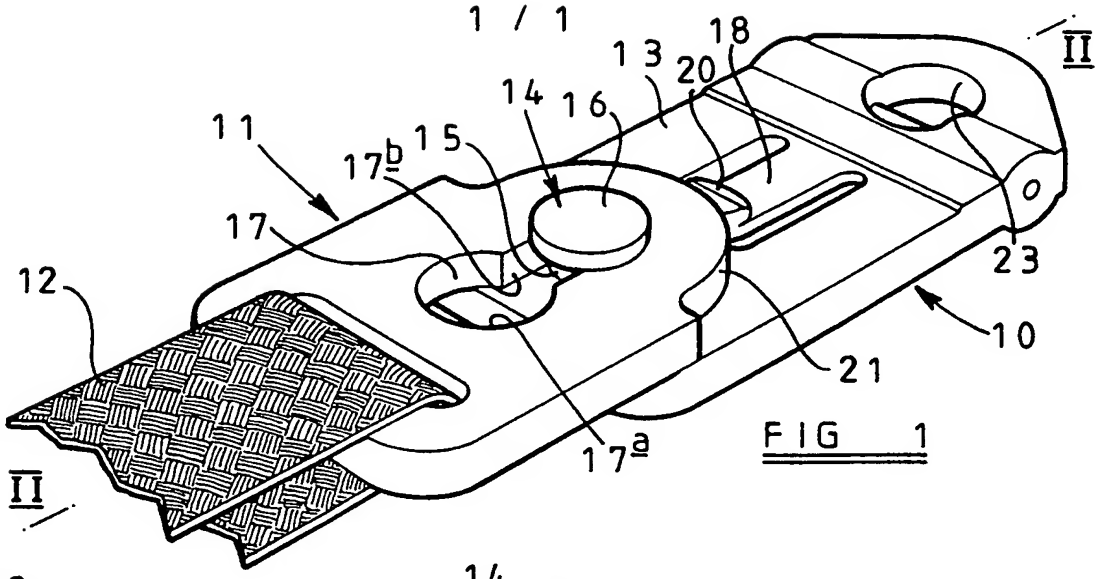


FIG 1

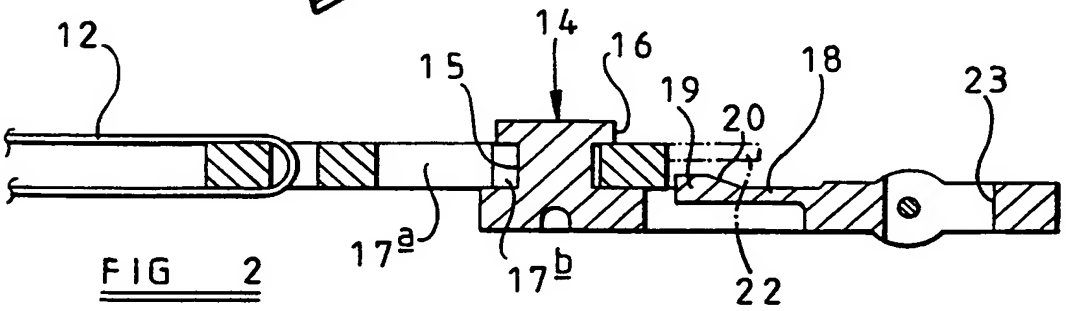


FIG 2

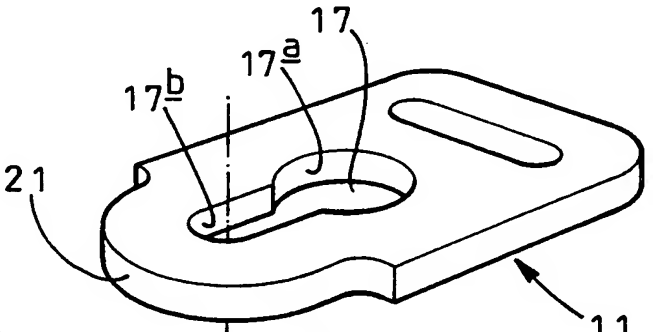
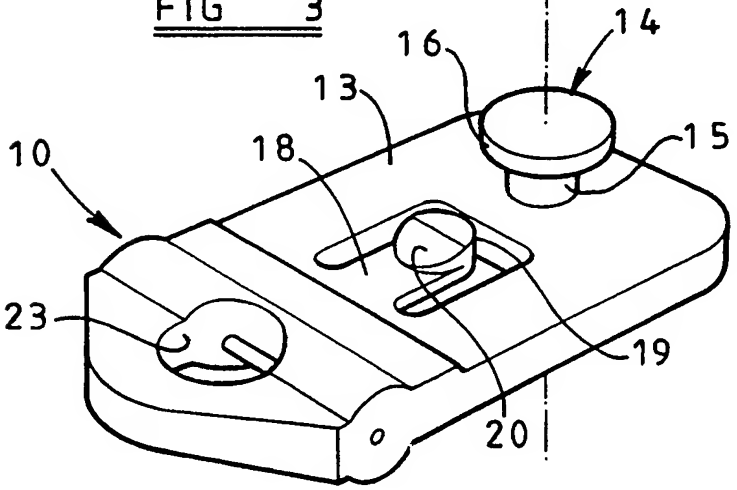


FIG 3



INTERNATIONAL SEARCH REPORT

Inter. nal Application No
PCT/GB 96/00807

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A61G7/10 A61G7/053 A44B11/25

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A61G A44B A44C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	DE,A,19 55 103 (THE FIRESTONE TIRE & RUBBER COMPANY) 8 October 1970 see figures 1,5-8 ---	1-8
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